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A METHOD OF PREPARING ASPHERICAL SURFACES OF OPTICAL COMPONENTS--ETC(U)

JAN 82 V V SORELK, B S KOLCHEV

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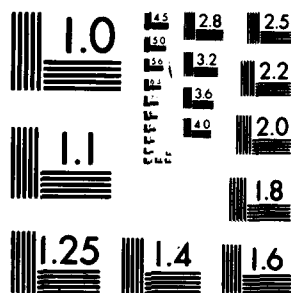
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MICROCOPY RESOLUTION TEST CHART
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A METHOD OF PREPARING ASPHERICAL SURFACES OF OPTICAL COMPONENTS

by

V.V. Gorelik, B.S. Kolchev, V.S. Plotnikov



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A METHOD OF PREPARING ASPHERICAL SURFACES OF OPTICAL COMPONENTS

By: V.V. Gorelik, B.S. Kolchev, V.S. Plotnikov

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PREPARED BY:

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U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	<i>А а</i>	A, a	Р р	<i>Р р</i>	R, r
Б б	<i>Б б</i>	B, b	С с	<i>С с</i>	S, s
В в	<i>В в</i>	V, v	Т т	<i>Т т</i>	T, t
Г г	<i>Г г</i>	G, g	У у	<i>У у</i>	U, u
Д д	<i>Д д</i>	D, d	Ф ф	<i>Ф ф</i>	F, f
Е е	<i>Е е</i>	Ye, ye; E, e*	Х х	<i>Х х</i>	Kh, kh
Ж ж	<i>Ж ж</i>	Zh, zh	Ц ц	<i>Ц ц</i>	Ts, ts
З з	<i>З з</i>	Z, z	Ч ч	<i>Ч ч</i>	Ch, ch
И и	<i>И и</i>	I, i	Ш ш	<i>Ш ш</i>	Sh, sh
Я я	<i>Я я</i>	Y, y	Щ щ	<i>Щ щ</i>	Shch, shch
К к	<i>К к</i>	K, k	Ъ ъ	<i>Ъ ъ</i>	"
Л л	<i>Л л</i>	L, l	Ы ы	<i>Ы ы</i>	Y, y
М м	<i>М м</i>	M, m	Ь ь	<i>Ь ь</i>	'
Н н	<i>Н н</i>	N, n	Э э	<i>Э э</i>	E, e
О о	<i>О о</i>	O, o	Ю ю	<i>Ю ю</i>	Yu, yu
П п	<i>П п</i>	P, p	Я я	<i>Я я</i>	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yě or ě.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sn	sin ⁻¹
cos	cos	ch	cosh	arc ch	cos ⁻¹
tg	tan	th	tanh	arc th	tan ⁻¹
ctg	cot	cth	coth	arc cth	coth ⁻¹
sec	sec	sch	sech	arc sch	sech ⁻¹
cosec	csc	csch	csch	arc csch	csch ⁻¹

Russian English

rot curl
lg log



A Method of Preparing Aspherical Surfaces of Optical Components.

Originators of the invention: V. V. Gorelik, B. S. Kolchev,
V. S. Plotnikov

Applicants: Krasnogorsk Order of Lenin Mechanical Plant
and the Moscow Institute of Geodesy, Aerial
Photography and Cartography Engineers.

The invention pertains to methods of obtaining optical surfaces by the method of spraying a layer of material in a vacuum on pre-polished surfaces.

A method is known of preparing aspherical surfaces by the spraying of a nonuniform layer of material in a vacuum chamber, which makes it possible to obtain on the surface being processed the required profile due to the application of an irregularly shaped screen specially located between the vaporizing device and the rotating work-piece.

The possibility of controlling shape formation during the spraying is the purpose of the invention.

This is achieved by the fact, that during the spraying, the thickness of the applied layer, depending on which the screen is being moved, is measured, for example, by a photoelectric method.

The essence of the method consists in the following. During the spraying in the vacuum chamber, the surface being processed is continuously monitored, for example, by a photoelectric, shadow, interference or autocollimation method. In proportion to the obtaining of the necessary quantity of the material layer on one or another zone of the surface being processed, it is shielded from the vaporizer by the screen, which is moved rectilinearly for this between the vaporizing device and the work-piece. Thus, the prepared sections of the surface are gradually removed from the processing. In this case, the shape of the screen being employed, which (the shape) can be different, does not require a special design and high accuracy of preparation.

To eliminate a gradual step-like nature of the applied material during the movement of the screen an oscillatory motion with a constant amplitude and frequency is imparted to the latter.

The Patent Claims:

A method of preparing aspherical surfaces of optical components by spraying in a vacuum on a base a layer of material, which is distinguished by the fact, that for the purpose of the possibility of controlling shape forming, the thickness of the applied layer, depending on which the screen is moved, is measured during the spraying, for example, by a photoelectric method.

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